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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,856	12/04/2003	Thomas George Ference	BUR919990304US2	7934
30400	7590	11/29/2004	EXAMINER	
HESLIN ROTHENBERG FARLEY & MESITI P.C. 5 COLUMBIA CIRCLE ALBANY, NY 12203			EDMONDSON, LYNNE RENEE	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/727,856

Applicant(s)

FERENCE ET AL.

Examiner

Lynne Edmondson

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-15 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. Claims 1, 2, 7-10, 12 and 13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26, 28, 32, 45 and 56 of copending Application No. 09/985693. Although the conflicting claims are not identical, they are not patentably distinct from each other because both teach a method a joining chip substrates by providing first and second solder bumps of different sizes and melting points.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5 and 7-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Ference et al. (USPN 5956606).

Ference teaches a method of joining substrates (104, 112, 300, 320) through first and second solder bumps (110, 114, 314,318) having different melting points and diameters (figures 6 and 11, col 3 lines 35-49 and col 5 lines 1-33). The second solder bumps (114, 318) are larger, melt at a lower temperature and contain more Sn (eutectic Pb:Sn). The second solder bumps are melted first (col 3 lines 1-14 and col 3 line 47 – col 4 line 6).

4. Claims 1-5 and 7-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Kodama et al. (USPN 5878942).

Kodama teaches a method of joining chip substrates of different sizes (1,10) through first and second solder bumps (30,31) having different melting points and diameters. The second solder bumps (31) are larger, melt at a lower temperature and contain eutectic solder (Table 1, col 3 line 33 – col 4 line 26 and col 6 lines 17-48). The second solder bumps are melted first (col 4 lines 1-61).

5. Claims 1-5 and 7-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Fallon et al. (USPN 6759738 B1).

Fallon teaches a method of joining chip substrates (col 6 lines 36-39) of different sizes (698, 734) through first and second solder bumps (750,712) having different melting points (col 12 lines 1-40) and diameters (figures 32 and 35 and col 35 line 48 – col 36 line 34). The second solder bumps (31) are larger, melt at a lower temperature and contain eutectic solder (col 15 lines 24-60, col 33 lines 1-17, col 34 line 43-60 and

figure 32). The second solder bumps are melted first (col 4 lines 35-49). At least one chip has wiring pads (figure 46 and col 37 lines 56-64).

Allowable Subject Matter

6. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jimarez et al. (USPN 5729440) and Casio Computer (JPN 10-12659 A).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (571) 272-1172. The examiner can normally be reached on Monday through Thursday from 6:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lynne Edmondson
Primary Examiner
Art Unit 1725

LRE

LYNNE R. EDMONDSON
PRIMARY EXAMINER

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1/24/04